# Annual Report of Operations for Year 2021

**To comply with NPDES General Permit No. WAG130000 for Federal Aquaculture Facilities and Aquaculture Facilities Located in Indian Country within the Boundaries of the State of Washington**

**NPDES # for your Facility:**
WAG130004

## Facility & Owner Information

Facility Name:
Makah National Fish Hatchery

Operator Name (Permittee):
U.S. Fish and Wildlife Service

Address:
P.O. Box 739 / 897 Hatchery Road
Neah Bay, WA 98357

Email: kristin_bates@fws.gov
Phone: 360-645-2521

Owner Name (if different from operator):

Email:
Phone:

## Best Management Practices (BMP) Plan

Has the BMP Plan been reviewed this year? ■ Yes ☐ No

Does the BMP Plan fulfill the requirements of the General Permit? ■ Yes ☐ No

Summarize any changes to the BMP Plan since the last annual report. Attach additional pages if necessary.
BMP has been updated, staff name changes have been submitted.

**EPA General Permit WAG130000 - Annual Report**

## Operations and Production

| | |
|---|---|
| Total harvestable weight produced in the past calendar year in pounds (lbs): | 50,413 lbs |
| Pounds of food fed to fish during the maximum month: 5,590 lbs - June 2021 | |

List the species grown or held at your facility and the annual production of each in gross harvestable weight. If fish were released rather than harvested, list the weight at time of release.

| Species | Fish Produced | Receiving Water(s) to which Fish were Released | Month Released/ Spawned |
|---|---|---|---|
| BY19 Steelhead | 128,523 | Tsoo-Yess River | 4/21 release |
| BY20 Chinook | 942,725 | Tsoo-Yess River | 5/21 release |
| BY20 Coho | 232,500 | Tsoo-Yess River | 5/21 release |
| BY20 Coho Smolt | 182,964 | Held for release in April 2022 | 11/20 spawn |
| BY20 Steelhead | 87,394 | Held for release in April 2022 | 12/20 spawn |
| | | | |
| | | | |

Fill in the table below with production numbers from the past year. List the **maximum** amount of fish on-site and the maximum amount of food fed **per month.**

| Month | Total Fish (lbs) | Fish Feed (lbs) | Month | Total Fish (lbs) | Fish Feed (lbs) |
|---|---|---|---|---|---|
| January | 19,891 | 1,840 | July | 4,752 | 1,037 |
| February | 21,721 | 2,807 | August | 6,060 | 1,852 |
| March | 25,764 | 5,468 | September | 6,969 | 2,140 |
| April | 31,894 | 3,663 | October | 10,604 | 1,431 |
| May | 11,898 | 3,608 | November | 12,300 | 938 |
| June | 4,523 | 5,590 | December | 13,420 | 869 |

Additional Comments:

## Solid Waste Disposal

Describe the solid waste disposed of during the calendar year (including fish mortalities).

| Type of Solid Disposed | Date Disposed | Location Disposed |
|---|---|---|
| Fish Mortalities | 4/30/2021 | Makah Tribal Dump |
| Fish Mortalities | 8/24/2021 | Makah Tribal Dump |
| | | |
| | | |

Additional Comments:

fish mortalities were bagged and frozen, then disposed of during trash pick-up.

## Fish Mortalities

Include a description and the dates of mass mortalities in the past year (more than 5% per week). Attach additional pages, if necessary. Include total mortalities from all causes.

| Date | Cause of Deaths | Steps Taken to Correct Problem | Pounds of Fish |
|---|---|---|---|
| 4/21-4/30 | Coldwater Disease and Trichodina parasite infestation. | 10 day Terramycin medicated feed regime and Parasite S (Formalin) static bath | 111.5 lbs |
| 8/7-8/24 | Chronic coldwater disease and "Ich" (ichthyobodo spp.) | 10 day Terramycin medicated feed regime and Parasite S (Formalin) static bath | 453 lbs |
| | | | |
| | | | |

Additional Comments:

We had two mortality events with our BY20 steelhead fry, fish were treated and mortalities removed over the course of the event. Morts were frozen then disposed of.

## Noncompliance Summary

Include a description and the dates of noncompliance events (including spills), the reasons for the incidents, and the steps taken to correct the problems. Attach additional pages, if necessary.

No areas of noncompliance in 2021.

## Inspections & Repairs for Production & Wastewater Treatment Systems

| Date Inspected | Date Repaired | Description of System Inspected and/or Repaired |
|---|---|---|
| Monthly | 1x/month | Check serpentine discharge channel, clear downed trees, ensure flow is normal. |
| Daily | 2x/day | Inspect & operate traveling water screens on intake production water. |
| Daily | 2x/day | Check headbox water and tail screen integrity on raceways and indoor start tanks. |
| Weekly | 1-2x/week | Backflush sand filters for incubation and start tank production water. |
| | | |
| | | |

## Aquaculture Drugs and Chemicals

Please indicate whether you used each drug/chemical **during the past calendar year.**
Describe the use of each drug/chemical in more detail on the following pages.

| Used in the past year? | Drug or Chemical |
|---|---|
| ☐ Yes ■ No | Azithromycin |
| ☐ Yes ■ No | Chloramine-T: ***See additional reporting requirements on page 7*** |
| ■ Yes ☐ No | Chlorine |
| ☐ Yes ■ No | Draxxin |
| ☐ Yes ■ No | Erythromycin - injectable |
| ☐ Yes ■ No | Erythromycin - medicated feed |
| ☐ Yes ■ No | Florfenicol (Aquaflor) |
| ■ Yes ☐ No | Formalin - 37% formaldehyde: ***See additional reporting requirements on page 7*** |
| ☐ Yes ■ No | Herbicide - describe: |
| ☐ Yes ■ No | Hormone - describe: |
| ☐ Yes ■ No | Hydrogen Peroxide: ***See additional reporting requirements on page 7*** |
| ■ Yes ☐ No | Iodine: ***See additional reporting requirements on page 7*** |
| ■ Yes ☐ No | Oxytetracycline |
| ☐ Yes ■ No | Potassium Permanganate: ***See additional reporting requirements on page 7*** |
| ☐ Yes ■ No | Romet |
| ☐ Yes ■ No | SLICE (emamectin benzoate) |
| ☐ Yes ■ No | Sodium Chloride - salt |
| ☐ Yes ■ No | Vibrio vaccine |
| ☐ Yes ☐ No | Other: |
| ☐ Yes ☐ No | Other: |

## Aquaculture Drugs and Chemicals (cont'd)

Describe all drug and/or chemical treatments that occurred during the year. Fill out the information below for each drug or chemical, plus page 7 for water-borne treatments. Attach additional pages as necessary.

| | | | |
|---|---|---|---|
| Brand Name: NorWeco | | Generic Name: Chlorine(Calcium Hypochlorite) | |
| Reason for use: Water disinfection from sockeye incubation | | | |
| ☐ Preventative/Prophylactic<br>■ As-needed | Total quantity of formulated product per treatment (specify units): 12.7microliters/L | Total quantity of formulated product used in past year (specify units): 19,092 grams | |
| Date(s) of treatment:<br>10/20/21 - 12/27/2021 | | | Total number of treatments in past year:<br>67 days |
| Maximum daily volume of treated water:<br>17,280 gallons/day | Treatment concentration (specify units):<br>0.5ppm | Duration and frequency of treatment(s):<br>24hrs/day for 67 days | |
| Method of application: | ☐ Static Bath<br>■ Flow-through | ☐ Medicated Feed<br>☐ Other (describe): | |
| Location in facility chemical was used (check all that apply): | ☐ Raceways<br>■ Incubation building | ☐ Ponds<br>☐ Off-line settling basin | ☐ Other (describe): |
| Where did water treated with this chemical go? (check all that apply): | ☐ Discharged w/o treatment<br>■ Settling basin | ☐ Septic System<br>☐ Publicly owned treatment works | ☐ Other (describe): |
| Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:<br>sockeye building effluent, IHNV preventative/water disinfection | | | |

| | | | |
|---|---|---|---|
| Brand Name: Terramycin 200 | | Generic Name: Oxytetracycline | |
| Reason for use: Control mortality due to bacterial coldwater disease | | | |
| ☐ Preventative/Prophylactic<br>■ As-needed | Total quantity of formulated product per treatment:<br>37.5 grams | Total quantity of formulated product used in past year (specify units): 256.9 grams | |
| Date(s) of treatment:<br>4/30/21, 8/2/21, 8/16/21 (2 groups treated) | | | Total number of treatments in past year:<br>4 |
| Maximum daily volume of treated water:<br>1,440,000gallon/day | Treatment concentration (specify units):<br>3.75g/100lbs fish | Duration and frequency of treatment(s):<br>10 day treatment, 4x in 2021 | |
| Method of application: | ☐ Static Bath<br>☐ Flow-through | ■ Medicated Feed<br>☐ Other (describe): | |
| Location in facility chemical was used (check all that apply): | ■ Raceways<br>☐ Incubation building | ☐ Ponds<br>☐ Off-line settling basin | ☐ Other (describe): |
| Where did water treated with this chemical go? (check all that apply): | ☐ Discharged w/o treatment<br>■ Settling basin | ☐ Septic System<br>☐ Publicly owned treatment works | ☐ Other (describe): |
| Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:<br>4 separate medicated feed treatments in 2021 due to bacterial coldwater disease | | | |

## Aquaculture Drugs and Chemicals (cont'd)

### *Additional Reporting Requirements for Water-Borne Treatments*

- If a water-borne treatment was used during the calendar year, Permittees must include detailed records/calculations as an attachment to this Annual Report in order to demonstrate how the maximum effluent concentrations of solution and active ingredient were calculated for each chemical.
- EPA recognizes that water-borne treatments may vary in the volume of the vessels treated, concentration, quantity of product, etc. Permittees must provide the information listed in the following tables for a reasonable worst case (i.e., maximum effluent concentration) scenario, not for each individual treatment.
- Permittees must submit this information and calculate the maximum effluent concentration for each water-borne chemical used during the past calendar year.
- See also Appendix D for the Chemical Log Sheet.

| **Static Bath Treatments** | |
|---|---|
| Tank Volume | Liters |
| Desired Static Bath Treatment Concentration | µg/L |
| Volume of Product Needed | Liters Product |
| Maximum Effluent Concentration of:<br>1) Solution and 2) Active Ingredient | Solution:<br>Active Ingredient: Specify Units |
| Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day | Specify Units |
| Maximum % of Facility Discharge Treated | % of Total Discharge |

| Chlorine **Flow-Through Treatments** | |
|---|---|
| Tank Volume | 640 Liters |
| Calculated Flow Rate | 48 Liters/Minute |
| Duration of Treatment | 67 days total =96,480 minutes Minutes |
| Desired Flow-Through Treatment Concentration of Product | 12.7 µg/L |
| Amount of Product to Add Initially | 48L/minute Liters Product |
| Amount of Product to Add During Treatment | 3.7 mL/Minute |
| Total Volume of Product Needed | 363.7L (73% activeingredient) Liters Product |
| Maximum Effluent Concentration of:<br>1) Solution and 2) Active Ingredient | Solution: 17,280 gallons/day<br>Active Ingredient: 5.4L/day Specify Units |
| Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day | 5,760,000 gallons/day Specify Units |
| Maximum % of Facility Discharge Treated | .000000234 % of Total Discharge |

## Aquaculture Drugs and Chemicals (cont'd)

Describe all drug and/or chemical treatments that occurred during the year. Fill out the information below for each drug or chemical, plus page 7 for water-borne treatments. Attach additional pages as necessary.

| | | | |
|---|---|---|---|
| Brand Name: Parasite S | | Generic Name: Formalin (37%) | |
| Reason for use: Control of Fungus During Incubation | | | |
| ■ Preventative/Prophylactic<br>■ As-needed | Total quantity of formulated product per treatment (specify units): 750ml | Total quantity of formulated product used in past year (specify units): 811.1 L(202.8 gallons) | |
| Date(s) of treatment:<br>1/1/2021 - 12/31/2022 | | | Total number of treatments in past year:<br>159 |
| Maximum daily volume of treated water:<br>1380 gallons | Treatment concentration (specify units):<br>150ppm | Duration and frequency of treatment(s):<br>15 minutes 5x/week during incubation | |
| Method of application: | ☐ Static Bath<br>■ Flow-through | ☐ Medicated Feed<br>☐ Other (describe): | |
| Location in facility chemical was used (check all that apply): | ☐ Raceways<br>■ Incubation building | ☐ Ponds<br>☐ Off-line settling basin | ☐ Other (describe): |
| Where did water treated with this chemical go? (check all that apply): | ☐ Discharged w/o treatment<br>■ Settling basin | ☐ Septic System<br>☐ Publicly owned treatment works | ☐ Other (describe): |
| Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:<br>Eggs are treated while in incubation 5x/week January-March and September-December | | | |

| | | | |
|---|---|---|---|
| Brand Name: Parasite S | | Generic Name: Formalin (37%) | |
| Reason for use: External Parasite Management in Raceway Units | | | |
| ☐ Preventative/Prophylactic<br>■ As-needed | Total quantity of formulated product per treatment:<br>150 ul/l | Total quantity of formulated product used in past year (specify units): 4.3 gallons | |
| Date(s) of treatment:<br>7/14/21 and 7/30/21 | | | Total number of treatments in past year:<br>2 |
| Maximum daily volume of treated water:<br>16,000 | Treatment concentration (specify units):<br>150 ul/l | Duration and frequency of treatment(s):<br>1x static bath for 1hr (2 times in 2021) | |
| Method of application: | ■ Static Bath<br>☐ Flow-through | ☐ Medicated Feed<br>☐ Other (describe): | |
| Location in facility chemical was used (check all that apply): | ■ Raceways<br>☐ Incubation building | ☐ Ponds<br>☐ Off-line settling basin | ☐ Other (describe): |
| Where did water treated with this chemical go? (check all that apply): | ☐ Discharged w/o treatment<br>■ Settling basin | ☐ Septic System<br>☐ Publicly owned treatment works | ☐ Other (describe): |
| Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:<br>Two formalin treatments on fish in our raceways to control Ich. parasite. | | | |

## Aquaculture Drugs and Chemicals (cont'd)

### *Additional Reporting Requirements for Water-Borne Treatments*

- If a water-borne treatment was used during the calendar year, Permittees must include detailed records/calculations as an attachment to this Annual Report in order to demonstrate how the maximum effluent concentrations of solution and active ingredient were calculated for each chemical.
- EPA recognizes that water-borne treatments may vary in the volume of the vessels treated, concentration, quantity of product, etc. Permittees must provide the information listed in the following tables for a reasonable worst case (i.e., maximum effluent concentration) scenario, not for each individual treatment.
- Permittees must submit this information and calculate the maximum effluent concentration for each water-borne chemical used during the past calendar year.
- See also Appendix D for the Chemical Log Sheet.

| **Static Bath Treatments** | |
|---|---|
| Tank Volume | Liters |
| Desired Static Bath Treatment Concentration | µg/L |
| Volume of Product Needed | Liters Product |
| Maximum Effluent Concentration of:<br>1) Solution and 2) Active Ingredient | Solution:<br>Active Ingredient: Specify Units |
| Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day | Specify Units |
| Maximum % of Facility Discharge Treated | % of Total Discharge |

| Formalin (37%) **Flow-Through Treatments** Incubation | |
|---|---|
| Tank Volume | 6900 L Liters |
| Calculated Flow Rate | 4 gpm Liters/Minute |
| Duration of Treatment | 15 minutes Minutes |
| Desired Flow-Through Treatment Concentration of Product | 2000 µg/L |
| Amount of Product to Add Initially | 13 Liters Product |
| Amount of Product to Add During Treatment | 30.2 mL/Minute |
| Total Volume of Product Needed | 13.495 Liters Product |
| Maximum Effluent Concentration of:<br>1) Solution and 2) Active Ingredient | Solution: 3.37 gallons<br>Active Ingredient: 1.25 gallons Specify Units |
| Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day | 5,760,000 (4000 gallons/min) gallons/day Specify Units |
| Maximum % of Facility Discharge Treated | .000000585 % of Total Discharge |

## Aquaculture Drugs and Chemicals (cont'd)

### *Additional Reporting Requirements for Water-Borne Treatments*

- If a water-borne treatment was used during the calendar year, Permittees must include detailed records/calculations as an attachment to this Annual Report in order to demonstrate how the maximum effluent concentrations of solution and active ingredient were calculated for each chemical.
- EPA recognizes that water-borne treatments may vary in the volume of the vessels treated, concentration, quantity of product, etc. Permittees must provide the information listed in the following tables for a reasonable worst case (i.e., maximum effluent concentration) scenario, not for each individual treatment.
- Permittees must submit this information and calculate the maximum effluent concentration for each water-borne chemical used during the past calendar year.
- See also Appendix D for the Chemical Log Sheet.

| Formalin (37%) **Static Bath Treatments** Raceways | |
|---|---|
| Tank Volume | 32,000 (8000 gallons) Liters |
| Desired Static Bath Treatment Concentration | 150 µg/L |
| Volume of Product Needed | 2.3 gallons (9.2 L) Liters Product |
| Maximum Effluent Concentration of: 1) Solution and 2) Active Ingredient | Solution: 16,000 gallons<br>Active Ingredient: 0.851 gallons (37%) Specify Units |
| Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day | 5,760,000 gallons/day Specify Units |
| Maximum % of Facility Discharge Treated | .0028 % of Total Discharge |

| **Flow-Through Treatments** | |
|---|---|
| Tank Volume | Liters |
| Calculated Flow Rate | Liters/Minute |
| Duration of Treatment | Minutes |
| Desired Flow-Through Treatment Concentration of Product | µg/L |
| Amount of Product to Add Initially | Liters Product |
| Amount of Product to Add During Treatment | mL/Minute |
| Total Volume of Product Needed | Liters Product |
| Maximum Effluent Concentration of: 1) Solution and 2) Active Ingredient | Solution:<br>Active Ingredient: Specify Units |
| Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day | Specify Units |
| Maximum % of Facility Discharge Treated | % of Total Discharge |

## Aquaculture Drugs and Chemicals (cont'd)

Describe all drug and/or chemical treatments that occurred during the year. Fill out the information below for each drug or chemical, plus page 7 for water-borne treatments. Attach additional pages as necessary.

| | | | |
|---|---|---|---|
| Brand Name: Ovadine | | Generic Name: Iodine (1%) | |
| Reason for use: Egg Disinfection | | | |
| ☐ Preventative/Prophylactic<br>■ As-needed | Total quantity of formulated product per treatment (specify units): 2.24oz | Total quantity of formulated product used in past year (specify units): 1108.8 oz (8.67 gallons) | |
| Date(s) of treatment:<br>10/13, 10/14, 10/27, 11/10, 11/23, 12/10, 12/22/2022 | | | Total number of treatments in past year:<br>7 |
| Maximum daily volume of treated water:<br>1050 gallons | Treatment concentration (specify units):<br>50ppm | Duration and frequency of treatment(s):<br>1hr static bath after fertilizing | |
| Method of application: | ■ Static Bath<br>☐ Flow-through | ☐ Medicated Feed<br>☐ Other (describe): | |
| Location in facility chemical was used (check all that apply): | ☐ Raceways<br>■ Incubation building | ☐ Ponds<br>☐ Off-line settling basin | ☐ Other (describe): |
| Where did water treated with this chemical go? (check all that apply): | ☐ Discharged w/o treatment<br>■ Settling basin | ☐ Septic System<br>☐ Publicly owned treatment works | ☐ Other (describe): |
| Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:<br>Eggs are water hardened in 50ppm ovadine for 1 hour after fertilization | | | |

| | | | |
|---|---|---|---|
| Brand Name: | | Generic Name: | |
| Reason for use: | | | |
| ☐ Preventative/Prophylactic<br>☐ As-needed | Total quantity of formulated product per treatment: | Total quantity of formulated product used in past year (specify units): | |
| Date(s) of treatment: | | | Total number of treatments in past year: |
| Maximum daily volume of treated water: | Treatment concentration (specify units): | Duration and frequency of treatment(s): | |
| Method of application: | ☐ Static Bath<br>☐ Flow-through | ☐ Medicated Feed<br>☐ Other (describe): | |
| Location in facility chemical was used (check all that apply): | ☐ Raceways<br>☐ Incubation building | ☐ Ponds<br>☐ Off-line settling basin | ☐ Other (describe): |
| Where did water treated with this chemical go? (check all that apply): | ☐ Discharged w/o treatment<br>■ Settling basin | ☐ Septic System<br>☐ Publicly owned treatment works | ☐ Other (describe): |
| Provide any additional information about how this chemical was used and/or special pollution prevention practices during use: | | | |

## Aquaculture Drugs and Chemicals (cont'd)

### *Additional Reporting Requirements for Water-Borne Treatments*

- If a water-borne treatment was used during the calendar year, Permittees must include detailed records/calculations as an attachment to this Annual Report in order to demonstrate how the maximum effluent concentrations of solution and active ingredient were calculated for each chemical.
- EPA recognizes that water-borne treatments may vary in the volume of the vessels treated, concentration, quantity of product, etc. Permittees must provide the information listed in the following tables for a reasonable worst case (i.e., maximum effluent concentration) scenario, not for each individual treatment.
- Permittees must submit this information and calculate the maximum effluent concentration for each water-borne chemical used during the past calendar year.
- See also Appendix D for the Chemical Log Sheet.

| Iodine (Incubation) | **Static Bath Treatments** |
|---|---|
| Tank Volume | 20 L (5 gallons) Liters |
| Desired Static Bath Treatment Concentration | 1:200 (5ml/L) µg/L |
| Volume of Product Needed | .66 Liters Product |
| Maximum Effluent Concentration of: 1) Solution and 2) Active Ingredient | Solution: 3.67 gallons<br>Active Ingredient: 0.367 (1% iodine) Specify Units |
| Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day | 5,760,000 gallons/day Specify Units |
| Maximum % of Facility Discharge Treated | .000000637 % of Total Discharge |

| **Flow-Through Treatments** | |
|---|---|
| Tank Volume | Liters |
| Calculated Flow Rate | Liters/Minute |
| Duration of Treatment | Minutes |
| Desired Flow-Through Treatment Concentration of Product | µg/L |
| Amount of Product to Add Initially | Liters Product |
| Amount of Product to Add During Treatment | mL/Minute |
| Total Volume of Product Needed | Liters Product |
| Maximum Effluent Concentration of: 1) Solution and 2) Active Ingredient | Solution:<br>Active Ingredient: Specify Units |
| Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day | Specify Units |
| Maximum % of Facility Discharge Treated | % of Total Discharge |

## Changes to the Facility or Operations

| Describe any changes to the facility or operations since the last annual report. |
|---|
| No Changes in 2021. |

## Signature and Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly evaluate and gather the information submitted. Based on my inquiry of the person or persons, who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

| | |
|---|---|
| Printed name of person signing | Title |
| Kristin Bates | Hatchery Manager |
| Applicant Signature KRISTIN BATES Digitally signed by KRISTIN BATES Date: 2022.01.19 20:34:27 -08'00' | Date Signed 1/19/2022 |

## Submittal Information

Send the complete, signed information, along with any attachments, to the following address:

U.S. EPA Region 10, OWW-191

Washington Hatchery Annual Report

1200 Sixth Avenue, Suite 900

Seattle, WA 98101-3140